



Catalog of State Actions Transportation and Land Use (TLU) Technical Work Group

A catalog of state-level, greenhouse gas (GHG)-reducing actions and policy options prepared by the Center for Climate Strategies (CCS), Arkansas Governor's Commission on Global Warming, and others based on actions undertaken or considered by Arkansas and other states, including regional, state, local, and private actions.

Important Note: The state actions are numbered in this catalog solely for convenience in referencing them. Their numbers do NOT reflect a ranking or prioritization of the actions.

Key to Future Rankings of Options in the Tables That Follow

Potential Emission Reductions <u>1/</u>	Potential Cost Effectiveness <u>1/ 2/</u>
High (H): At least 1.0 Million Metric Tons (MMT) carbon dioxide equivalent (CO ₂ e) per year by 2020	High (H): Less than \$15/tCO ₂ e
Medium (M): From 0.1 to 1.0 MMT CO ₂ e per year by 2020	Medium (M): \$15-40/tCO ₂ e
Low (L): Less than 0.1 MMT CO ₂ e per year by 2020, or 1 MMT CO ₂ e by 2050	Low (L): \$40 per Metric Ton CO ₂ e (MTCO ₂ e) or above
Uncertain (U): Not able to estimate at this time	Uncertain (U): Not able to estimate at this time

1/ Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.

2/ Costs are denoted by a positive number. Cost savings (i.e., "negative costs") are denoted by a negative number.

Definition of "Priorities for Analysis"

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low:** Low priority options will be analyzed last, time and resources permitting

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reduction	Potential Cost Effectiveness	Ancillary Impacts, Feasibility Considerations	Notes
TLU-1	PASSENGER VEHICLE GHG EMISSION RATES					
TLU-1.1	VEHICLE TECHNOLOGY					
1.1.1	New Vehicle Standards: Tailpipe GHG and Fuel Economy”					
1.1.2	ZEV/LEV-2 implementation					
1.1.3	Research and development (R&D) on low-GHG vehicle technology (e.g., fuel cell)					
1.1.4	Add-on technologies (low friction oil, low-rolling resistance tires) – light-duty vehicles					
1.1.5	Hybrid buses					
1.1.6	Support new corporate automobile fuel economy (CAFÉ) standards					
1.1.7	Require GHG emission stickers on new cars					
1.1.8	Develop Infrastructure for Plug-In Vehicles					
TLU-1.2	VEHICLE OPERATION					
1.2.1	Enforce speed limits – speed cameras and police					
1.2.2	Vehicle maintenance, driver training/eco-driving, including tire pressure maintenance					

1.2.3	Transportation system management (intelligent transportation systems, signal synchronization)					
1.2.4	Driver feedback technology with pay-as-you-drive insurance					
1.2.5	Require tune-up services including tire pressure checks					
1.2.6	Vehicle idling restrictions					
1.2.7	School education programs					
1.2.8	Enforcement of auto anti-idling reduction requirements					
1.2.9	Public Education					
TLU-1.3	INCENTIVES AND DISINCENTIVES					
1.3.1	Procurement of efficient fleet vehicles					
1.3.2	Feebates (state-specific or regional)					
1.3.3	CO ₂ -based registration fees					
1.3.4	Tax credits for efficient vehicles					
1.3.5	Vehicle scrappage					
1.3.6	Emission-based tolling (discount for clean vehicles)					
1.3.7	Establish a carbon emission tax like the Clean Air Discount Bill introduced in California					
1.3.8	Establish a fleet replacement grant program					
1.3.9	Provide tax incentives for adult bicycles					

1.3.10	Support alternative travel in the advertising mainstream					
TLU-2	LAND USE AND LOCATION EFFICIENCY					
TLU-2.1	GENERAL					
2.1.1	Adopt statewide growth management plan					
2.1.2	Include GHG evaluations in state policies					
2.1.3	Shape public and private investment to maximize GHG reductions					
2.1.4	Provide technical and financial support to local and regional agencies, enhancing technical tools, capacity, and fund grant program					
2.1.5	Land use, zoning, tax and building code reform					
2.1.6	Ensure State congressional delegation works for federal highway, transportation, and land use-related legislation and programs supporting timely climate change action					
2.1.7	Use of flexible federal transportation funding					
2.1.8	Downtown revitalization					
2.1.9	Brownfield redevelopment					
2.1.10	Traffic calming					
2.1.11	Infill Redevelopment					

2.1.12	Transit-Oriented Development					
2.1.13	Smart Growth Planning, Modeling, Tools					
2.1.14	Targeted Open Space Protection					
2.1.15	Balance economic development with agriculture, protection of natural resources, and preserving rural character					
2.1.16	Consider the impact of GHG emission reduction strategies on public transportation					
2.1.17	Research alternative ways to fund transportation that creates incentives to drive less					
TLU-2.2	INCREASING LOW-GHG TRAVEL OPTIONS					
2.2.1	Make full use of Congestion, Mitigation, and Air Quality (CMAQ) funds—with application reviews considering GHG reductions					
2.2.2	Improve transit service (frequency, convenience, quality)					
2.2.3	Transit marketing and promotion, (including individualized transit marketing)					
2.2.4	Bike and pedestrian infrastructure					

2.2.5	Expand transit infrastructure (rail, bus, bus rapid transit [BRT])					
2.2.6	High-occupancy vehicle (HOV) lanes – re-stripping of existing lanes					
2.2.7	“Fix-it-First” policy					
2.2.8	Transit prioritization (signal prioritization, HOV lanes)					
2.2.9	Telecommute, live-near-your-work and tele-education					
2.2.10	Require that government agencies use telecommuting					
2.2.11	Car-sharing					
2.2.12	E-commerce					
2.2.13	Carbon dioxide (CO ₂) conformity requirements					
2.2.14	Park-and-ride lots					
2.2.15	Guaranteed ride home for transit users and ridesharers					
2.2.16	Telecommuting support and incentives					
2.2.17	Provide incentives to communities / employers to become “Best Workplaces for Commuters”					
2.2.18	Issue free bus passes to downtown workers					
2.2.19	Issue free bus passes to students and retired people					

2.2.20	Create regional intermodal transportation centers					
2.2.21	Vanpooling and carpooling					
2.2.22	Pricing strategies favoring transit/ridesharing (e.g., road pricing with discounts for HOVs)					
TLU-2.3	INCENTIVES AND DISINCENTIVES					
2.3.1	Commuter choice/parking cash out					
2.3.2	VMT tax (revenue neutral replacing motor fuel tax)					
2.3.3	Pay-as-you-drive insurance					
2.3.4	Increased fuel tax (w/ targeted use of revenue towards travel alternatives)					
2.3.5	Location-efficient mortgages					
2.3.6	Congestion pricing, emission-based truck tolls, and/or road tolls (with targeted use of revenue toward travel alternatives)					
2.3.7	Parking pricing, excise tax, and/or supply restrictions					
2.3.8	Provide free downtown parking to carpoolers					
2.3.9	Transit market repositioning					
2.3.10	Transit pricing incentives					
2.3.11	VMT/GHG offset requirements for large developments					

2.3.12	Benefits for low GHG vehicles (preferential parking, use of HOV lanes)					
2.3.13	Preferential parking spaces for high-occupancy vehicles and car-sharing programs					
2.3.14	Cordon pricing and intercity tolls					
TLU-2.4	FUEL MEASURES					
2.4.1	Low-GHG fuel standard (e.g., renewable)					Also known as a low-carbon fuel standard.
2.4.2	Low-GHG fuel for State fleets (e.g., compressed natural gas [CNG], biodiesel)					

2.4.3	Biofuel expansion (biodiesel, CNG, liquefied petroleum gas [LPG], cellulosic ethanol)					<p>2007 Act 873 (HB1379) creates the Arkansas Alternative Fuels Development Program with the purpose of providing grant incentives for alternative fuels producers, feedstock processors, and alternative fuels distributors.</p> <p>2003 Act 1287 (SB363) provides a tax credit for biodiesel suppliers in the state. The act provides incentives in the form of grants for biodiesel producers in the state.</p>
2.4.4	Alternative fuel infrastructure development (e.g., electric vehicle charging facilities and conveniently located fueling stations.)					See Description of Act 873 (HB1379) above.
2.4.5	Fund R&D for renewable transportation fuels (e.g, life cycle analysis, sustainability, etc.).					See Description of Act 873 (HB1379) above.
TLU-3	FREIGHT					
TLU-3.1	VEHICLE TECHNOLOGY					
3.1.1	Vehicle technology improvements (e.g., aerodynamics)					

3.1.2	R&D on low-GHG vehicle technology					
3.1.3	Black carbon control technologies (e.g., use of particulate traps, other complementary technologies)					Black carbon can affect climate by absorbing sunlight and heating the air, thereby altering large-scale atmospheric circulation and the hydrologic cycle.
3.1.4	Facilitate adoption of new clean technologies—rail and marine engines					
3.1.5	Single-wide tires, low resistance radials, automatic tire inflation					
TLU-3.2	VEHICLE OPERATION					
3.2.1	Freight logistics improvements/geographic information system (GIS)					
3.2.2	Enforce speed limits					
3.2.3	Improve traffic flow					
3.2.4	Increased size and weight of trucks					
3.2.5	Pre-clearance at scale houses					
3.2.6	Truck stop electrification (e.g., IdleAire); provide alternatives to diesel engine idling at truck stops and terminal sites					
3.2.7	Enforce anti-idling					
3.2.8	Clean freight operating improvements					Example: particulates from freight, including dust from cargo.

3.2.9	Freight villages/consolidation centers					
TLU-3.3	INCREASING LOW-GHG TRAVEL OPTIONS					
3.3.1	Intermodal freight initiatives: railyard capacity					
3.3.2	Feeder barge container service					
3.3.3	Increase rail capacity, and address rail freight system bottlenecks					
3.3.4	Shift freight movements from truck to rail					
3.3.5	Promote strategies to ease the movement of freight in more GHG-efficient ways					
TLU-3.4	INCENTIVES AND DISINCENTIVES					
3.4.1	Procurement of efficient fleet vehicles (public, private, or other); fleet right-sizing					
3.4.2	Incentives to retire or improve older less efficient vehicles – standards for drayage trucks					
3.4.3	Maintenance and driver training					
3.4.4	Increased emission-based truck tolls or highway user fees					
TLU-4	INTERCITY TRAVEL: AVIATION, HIGH-SPEED RAIL, BUS					
4.1	High-speed rail					
4.2	Integrated aviation, rail, bus networks (planning, governance, and investment) – improved intermodal passenger connections					

4.3	Aircraft emissions – ATC improvements, efficient ground operations (tractor to taxi-way)					
4.4	Airport ground equipment – updating to more efficient equipment, minimum standards					
4.5	Intercity bus incentives and subsidies					
4.6	Expansion of intercity passenger rail					
TLU-5	OFF-ROAD VEHICLES (CONSTRUCTION EQUIPMENT, OUT-BOARD MOTORS, ATVS, ETC.)					
5.1	Incentives for purchase of efficient vehicles and equipment					
5.2	Improved operations, operator training					
5.3	Maintenance improvements					
5.4	Increased use of alternative fuels or low-sulfur diesel					
5.5	Adopt green port strategy (port land-side: clean up port dwelling and cargo handling equipment operations)					
5.6	Low-carbon fuel (off road and recreational marine)					
5.7	Locomotive idling reductions					
5.8	Inclusion of Idling reduction requirements					

5.9	Diesel cranes at river ports— electrification or other GHG- reducing alternatives					
5.10	“Shore power” at port sites					